USSR

UDC: 539.3

YEROFEYEV, N. K., MARCHENKO, M. K., GUKOVA, T. Ye.

"Study of Unevenness of Distribution of Deformations in Tensometric Plate"

Vibratsion. Tekhnika [Vibration Equipment -- Collection of Works], Moscow, 1972, pp 166-170 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 3, 1973, Abstract No 3.32.375), by Ye. V. K.

Translation: An expression is produced allowing calculation of deformation for any point on a plate with dimensions a, b. The results of calculations performed by computer are used to construct graphs of the dependence of deformation of an element of the plate on its position and the ratio of plate dimensions b/a. It is shown that with a ratio of sides of the plate b/a = 0.02, the unevenness of deformation does not exceed ±10%. Consequently, if the permissible unevenness of stress is on the order of 10%, the ratio of sides of a tensometric plate should be selected not over 0.02. The result produced is applicable to elastic plates made of any material which follows Hook's rule and is practically independent of the modulus of elasticity. 2 figures.

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USSR UDC 53.082.73:531.768

YEROFEYEV, N. K.

"Natural Frequency of An Acceleration Measuring Transducer in the Form of a Pasted Piezocell"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes USSR], 1972, No 139(199), pp 122-129 (from Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.509)

Translation: In measuring accelerations in the frequency range up to 50-100 kHz, a light piezocell pasted directly on the object can be used as transducer. In this case, the inertia element is absent and the function of mass is performed by its distributed mass. The method of calculation of the natural frequency of the transducer with accounting for the rigidity of the pasted gap s is reported. The increased energy dispersal in the pasted layer is considered by introduction of an equivalent damper with the damping coefficient β_2. Methods are reported for calculating β_2 and s from known surface and paste characteristics. The amplitude-frequency characteristic of the transducer was derived; in particular, the lowest natural frequency dependence on dimensions of the piezocell was plotted. The lowest natural frequency dependence on the height of the ceramic piezocell determined experimentally is compared with the calculated dependence. Six illustr., six biblio. refs.
1/1

USSR

UDC 621.371.029.55

VSEKHOSVYATSKAYA, I. S., GLADYSHEVA, M. V., GORSHKOVA, E. Z., DUMBRAVA, Z. F., YEROFEYEV, N. M., ZOLOTAREV, A. Ye., KIYANOVSKIY, M. P., MAL'SHAKOV, V. N., NOVIKOVA, L. N., PEZHEMSKAYA, M. D., PODDEL'SKIY, N. P., and RUDYKA, L. V.

"Some Results of Investigations Into Tilted Short-Pulse Sounding in Ranges up to 400 km Long"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972, pp 347-348 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A333)

Translation: Results are given of the selection of optimal operating frequencies for ranges of varying extent, the identification of propaganda modes, and the determination of the spectral characteristics of the fluctuations in signal level. A. L.

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USSR UDC 669.14.018.23

KOZHIN, V. M., KARPOV, A. G., OPANASENKO, T. V., GRISHINA, N. A., and YEROFEYEV, V. I.

"EP378 High-Strength Automatic Stainless Steel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1970, pp 25-27

Abstract: A new high-strength automatic stainless steel, type EP378 (0.35-0.45% C; 0.6-1.0% Mn; 1.7-2.2% Ni; 0.6-0.9% Mo; 16.5-18.5% Cr; 0.15-0.25% S; 0.08-0.15% P), is desribed. The new steel has superior physical and mechanical properties to types Kh14, 1Kh18N10Ye, and EI474. The steel is designed for parts of instruments working in friction which must have hardness HRC $\geq$ 48. The critical points for EP378 steel, determined dilatometrically, are: Ac_1 = 750°C; Ac_3 = 820°C; M_n = 220°C. The steel has maximum hardness when hardened from 1040-1060°C. The influence of tempering on mechanical properties is studied. The mechanical properties of the steel are: tensile strength 168-175 kg/mm^2, $\sigma_{0.2}$ = 140-145 kg/mm^2, δ = 8-10%, ψ = 15-17%, a_n = 1.0-1.8 kgm/cm^2, HRC = 48-52. Heat treatment modes are discussed.

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1/2 013 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--RESULTS OF A GEOPHYSICAL INVESTIGATION OF BOREHOLES IN THE KARLYUK POTASSIUM SALT DEPOSIT -U-
AUTHOR-(02)-SEDLETSKIY, V.I., YEROFEYEV, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK TURKM. SSR, SER. FIZ.-TEKH., KHIM. GEOL. NAUK 1970, (1), 47-52
DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOPHYSICS, POTASSIUM COMPOUND, ORE, EXPLORATORY DRILLING, WELL LOGGING, GEOCHEMISTRY, MINERAL DEPOSIT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1279 STEP NO--UR/0202/70/000/001/0047/0052

CIRC ACCESSION NO--AP0106060
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106060

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KARLYUK DEPOSIT IS THE LARGEST K SALT DEPOSIT IN CENTRAL ASIA. THE UPPER JURASSIC SALIFEROUS FORMATION, SIMILAR TO 400 M THICK, IS SITUATED AT DEPTHS OF 100-1000 M UNDER QUATERNARY AND LOWER CRETACEOUS TERRIGENOUS FORMATIONS. FROM 3 TO 11 LAYERS OF K SALTS, 0.5-25 M THICK, WERE SEPD. FROM A SINGLE MINERAL HALITE STRATUM CONTG. RARE THIN INTERLAYERS OF ANHYDRITES. THE K SALTS ARE EITHER PURE SYLVINITE OR MIXED SYLVINITE CARNALLITE VARIETIES. THE INTERLAYERS OF TERRIGENOUS ROCKS ARE ABSENT IN K SALT LAYERS. THE CONTENT OF RESIDUE, INSOL. IN WATER, IS USUALLY SMALLER THAN 3-5PERCENT. ELEC. LOGGING (RESISTIVITY AND SELF POTENTIAL), THERMOMETRY, GAMMA LOGGING, AND NEUTRON GAMMA LOGGING WERE USED DURING GEOCHEM. STUDIES. THE GEOPHYS. METHODS WERE EXTREMELY EFFECTIVE IN PROSPECTING AND SEPN. OF K SALT LAYERS. THE RESISTIVITY LOGGING WAS ESP. EFFECTIVE FOR SEPN. OF LAYERS AND BEDS, SITUATED OVER THE SALT COMPLEX, AND FOR OUTLINING THE ANHYDRITE INTERLAYERS IN SALTS. IT CAN BE USED ALSO FOR DETN. OF THE DIAM. OF DRILL HOLES IN A UNIFORM HALITE STRATUM AND IN ZONES OF LEACHING IN K LAYERS. THE SELF POTENTIAL METHOD IS SOMEWHAT LESS EFFECTIVE BECAUSE OF A HIGH TOTAL MINERAL CONTENT IN DRILLING MUS. THE GAMMA LOGGING WAS THE MAIN METHOD IN PROSPECTING. IT PROVIDED FOR A SURE SEPN. OF K LAYERS, FOR DETN. OF THEIR THICKNESS, AND EVALUATION OF K CONTENT. THE NEUTRON GAMMA LOGGING WAS USEFUL FOR APPROX. DETN. OF MINERAL COMPN. OF K SALTS AND SEPN. OF CARNALLITE BEDS.

UNCLASSIFIED

USSR

UDC 576.858.25.083.2

YEROFEYEV, V. S., and KARPOV, S. P., Tomsk Scientific Research Institute of Vaccines and Sera and Chair of Microbiology at the Tomsk Medical Institute

"Utilization of Syrian Hamsters and Piglets for Evaluation of Attenuated Tick-borne Encephalitis Virus"

Moscow, Voprosy Virusologii, No 5, Sep/Oct 72, pp 591-594

Abstract: The responses of four different types of laboratory animals to attenuated variants (V-67 and VE-4) of tickborne encephalitis virus were investigated by clinical, virological, and neuromorphological methods. After subcutaneous injections of the attenuated variants, randombred and Balb mice developed the disease, but in a much milder form than after injections of virulent strains. In Syrian hamsters, piglets, and rhesus monkeys, intracerebrally administered attenuated variants caused no clinical manifestations of encephalitis, though temporary viremia was observed in several animals for up to 3 days. Immunofluorescent and pathomorphological investigations also yielded negative results. In control tests with virulent strains, all hamsters, piglets, and monkeys developed the disease with pronounced neurological signs, high viremia, fever, and lethal outcome. The attenuated variants were highly pathogenic to cell cultures. Thus, because the reaction of Syrian hamsters

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USSR

YEROFEYEV, V. S. and KARPOV, S. P., Voprosy Virusologii, No 5, Sep/Oct 72, pp 591-594

and piglets to attenuated strains is the same as that of rhesus monkeys, the first two species are recommended as test animals. To pass the test of safety, attenuated tickborne encephalitis strains must be completely pathogenic for Syrian hamsters and piglets.

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USSR UDC: 533.951.2/.3

YEROFEYEV, V. S., SANOCHKIN, Yu. V.

"Ionization Instability of a Self-Sustaining Discharge in a Strong Transverse Magnetic Field"

V sb. Kolebaniya i volny v plazme (Oscillations and Waves in a Plasma--collection of works), Minsk, "Nauka i tekhn.", 1971, pp 24-27 (from RZh--Mekhanika, No 7, Jul 71, Abstract No 7B183)

Translation: A theoretical study is made of the problem of stability of the layer near the anode formed in a self-sustaining discharge with magnetized electrons and unmagnetized ions. For long-wave perturbations with a period of oscillations much greater than the time of flight of ions, the problem is solved for eigenvalues. It is shown that with a rise in pressure when there is a change from "vacuum" conditions to a mode with intense ion production, discharge becomes unstable. The authors determine the critical concentration of neutral particles, which depends only on the kind of gas and is proportional to the magnitude of the magnetic field. The frequency region in which instability develops is found and the instability mechanism is discussed. The theory is compared with experimental data. Authors' abstract.

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USSR

UDC 533.9:538.561

YEROFEYEV, V. S., SANOCHKIN, YU. V., and FILIPPOV, S. S.

"Electrical Layer Near the Anode in a Discharge With Transverse Magnetic Field"

Minsk, Kolebaniya i Volny v Plazme. (Oscillations and Waves in a Plasma), "Nauka i Tekhnika," 1971, pp 49-52

Abstract: The authors examine the problem of the distribution of potential and concentration of charged and neutral particles in the electric field near the anode forming in a discharge with a strong transverse magnetic field. They investigate the case of an independent discharge by allowing for the intake and burn-up of the neutral gas. The question concerning the probability of ionization of the neutral atoms in the layer is discussed, and solutions are also found for other charge conditions. The authors use equations to prove their solution and illustrate their findings graphically on two figures. Figure 1 shows the potential distribution andF Figrue 2 shows the characteristics of the neutral atoms. The article contains 2 illustrations and 5 bibliographic entries.

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1/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--LUMINESCENE ACCOMPANYING MECHANICAL DEFORMATION AND FAILURE OF POLYMERS -U-

AUTHOR-(05)-BUTYAGIN, P.YU., YEROFEYEV, V.S., MUSAYELYAN, I.N., PATRIKEYEV, G.A., STRELETSKIY, A.N.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 290-9

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENE, MECHANICAL FAILURE, ELONGATION, POLYMER, POLYTETRAFLUOROETHYLENE, POLYETHYLENE TEREPHTHALATE, PLASTIC FILM, POLYETHYLENE, PROPYLENE, POLYVINYL CHLORIDE, NATURAL RUBBER, VULCANIZATE, POLYMETHYLMETHACRYLATE, THERMAL DEGRADATION, POLYMER DEGRADATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1224 STEP NO--UR/0459/70/012/002/0290/0299

CIRC ACCESSION NO--AP0116686

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710005-1"

2/2 036 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LUMINESCENE OCCURRING DURING CONTRACTION, ELONGATION, AND FAILURE OF POLYMERS WAS STUDIED ON A SNK-7 IKHF APP. EQUIPPED WITH PHOTOMULTIPLIERS FEU-29 (LAMBDA SUBMAX EQUALS 400 PLUS OR MINUS 40 MMU), FEU-13 (LAMBDA SUBMAX EQUALS 410 PLUS OR MINUS 10 MMU), AND FEU-22 (LAMBDA SUBMAX EQUALS 750 PLUS OR MINUS 100 MMU). A CROSS SECTIONAL DIAGRAM OF THE APP. AND ITS MODE OF OPERATION ARE PRESENTED. THE MOST INTENSIVE LUMINESCENE DURING FAILURE WAS OBSD. IN POLY (TETRAFLUOROETHYLENE) FP-4 (I) AND POLY(ETHYLENE TEREPHTHALATE) (II) FILMS; THE LEAST LUMINESCENT POLYMERS WERE HIGH PRESSURE POLYETHYLENE, ETHYLENE PROPYLENE COPOLYMER (III), ETHYLENE ALPHA BUTYLENE COPLYMER, POLY(VINYL CHLORIDE), POLYPROPYLENE, AND NATURAL RUBBER (IV) VULCANIZATES. FAILURE OR SUDDEN CONTRACTION IN I-IV FILMS WAS ACCOMPANIED BY POST LUMINESCENE, (GREATER THAN OR EQUAL TO 15 MIN). THE LUMINESCENE INTENSITY WAS LOW IN ALL CASES AND EXCEEDED THE SENSITIVITY THRESHOLD OF THE PHOTOMULTIPLIERS ONLY BY A FACTOR OF 10 PRIME2-10 PRIME3. A HYPOTHESIS WAS ADVANCED TO ACCOUNT FOR THE LUMINESCENCE. STUDY OF THERMAL LUNINESCENCE OF POWD. POLYMERS SUGGESTED THAT LUMINESCENCE IN POLY (ME METHACRYLATE) AND POLYSTYRENE AT 270-330DEGREESK WAS DUE TO RECOMBINATION OF PEROXIDE RADICALS FORMED DURING MECH. SCISSION OF MACROMOLS., WHEREAS INTENSIVE LUMINESCENCE ABOVE 330DEGREESK WAS DUE TO OXIDATIVE THERMAL DEGRADATION INITIATED BY DECOMPD. HYDROPEROXIDES.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710005-1"

USSR UDC: 621.373.531(088.8)

BUTENKO, V. I., YEROFEYEV, Yu. I.

"A Relaxation Oscillator"

USSR Author's Certificate No 253129, filed 24 Jan 67 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G178 P)

Translation: This Author's Certificate introduces a relaxation oscillator which contains a tunnel diode flip-flop, a transistor stage and a thyristor with a time-mark capacitor connected between the cathode and anode. To reduce the recovery time of the oscillator, the thyristor is connected on the cathode side through a resistor to the collector of the transistor and on the anode side to the positive terminal of the power supply, while the control electrode is connected through a series RC circuit to the anode of the tunnel diode and to a voltage divider.

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Luminescence

USSR

UDC 535.379:542.943.4:547.724.1

KUL'NEVICH, V. G., and YEROFEYEVA, Krasnodar Polytechnic Institute, Department of Organic Chemistry

"Chemiluminescence During the Oxidation of Furfural"

Ivanovo, Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol XIII, No 10, 1970, pp 1,466-1,471

Abstract: Chemiluminescence methods have assumed increasing importance in recent years in assessing the kinetics and mechanisms of various complex processes.

The authors' study represents the first attempt to apply these methods to the oxidation of furfural. They studied experimentally the effects of heating in a closed vessel, of oxygen concentration, of temperature, and of several other factors, on the intensity of chemiluminescence.

It was concluded that the method in question is feasible in the case of furfural oxidation, given sufficiently sensitive equipment. The data obtained are illustrated graphically.

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USSR UDC 621.316.842

SERYAKOV, N. N., YEROFEYEVA, L. A., VOL'FNEUK, M. G., YURITSYN, L. V.

"A Method of Making MLT Resistors"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 36, Soviet Patent No 288089, class 21, filed 5 Aug 68, published 3 Dec 70, p 68

Translation: This Author's Certificate introduces a method of making MLT resistors. As a distinguishing feature of the patent, the reliability of the resistors is improved by selecting resistors in which the level of the noise emf is no more than 0.25 μV/V and giving them secondary pulse treatment.

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1/2 007 UNCLASSIFIED

TITLE--DRYING GRANULATED FERTILIZERS IN ROTARY DRIES -U-

PROCESSING DATE--30OCT70

AUTHOR-(04)-MAYZEL, YU.A., GOLUBEVA, A.M., YEROFEYEVA, M.V., BEYZERMAN, L.R.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(2), 117-21

DATE PUBLISHED----------70

SUBJECT AREAS--AGRICULTURE

TOPIC TAGS--CHEMICAL DRYING, PHOSPHORUS FERTILIZER, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0175

STEP NO--UR/0064/70/046/002/0117/0121

CIRC ACCESSION NO--AP0123946

UNCLASSIFIED

2/2 007 UNCLASSIFIED

CIRC ACCESSION NO--AP0123946 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN DRYING OF GRANULATED AMMONIATED SUPERPHOSPHATE FERTILIZERS IN ROTARY DRUM DRIERS, THE PARTICLE SIZE OF THE GRANULES CAN EITHER DECREASE OR INCREASE (DEPENDING ON THE EXACT NATURE OF THE FERTILIZER, THE RAW MATERIALS USED, THE INITIAL GRAIN SIZE, ETC.) BUT IN BOTH CASES THE RELATION BETWEEN THE F SUB1-F SUB2 RATIO (WHERE F SUB1 AND F SUB2 ARE THE INITIAL FAND FINAL EQUIV. SURFACE AREAS OF THE GRANULES) AND THE THERMAL LOAD DURING DRYING IS SATISFACTORILY DESCRIBED BY A PARABOLIC (DESCENDING OR ASCENDING) CURVE. A METHOD FOR THE AUTOMATIC CONTROL OF THE DRYING PROCESS ON THE BASIS OF PARTICLE SIZE IS DESCRIBED.

UNCLASSIFIED

USSR UDC 661.63.099.2.095

LINKEVICH, V. A., DADAKHODZHAYEV, A. T., NIYAZOV, M. I., and YEROFEYEVA, O. B., Tashkent Polytechnical Institute

"The Problem of Ammophos Granulation During Its Production by a Combination Process"

Izvestiya VUZ -- Khimiya i Khimicheskaya Tekhnologiya, Vol 14, No 5, 1971, pp 741-743

Abstract: When ammophos is produced by the combination process, the diameter of its granules changes exponentially. A slowed down growth of the granules, as compared to the process of normal distribution, indicates that along with the growth of the granules of the initial load, formation of new granules takes place. This points out a possibility for retreatment of poorly recoverable of nonrecoverable technological process for production of ammophos in a granulator-neutralizer using a pseudoliquefying layer, which however requires maintenance of an optimal technological process regimen coupled with a continuous separation of the finished product.

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Plant Pathology

USSR UDC 632.4:633.11:582.285.2(47+47)

IESOVOY, M. P., FEDOROVA, V. A., SHKODENKO, V. I. TERESHCHENKO, B. A., SHOPINA, V, V., IBRAGIMOV, G. R., AKHMEDOV, S. A., YEROGOVA, N. L., MAKONTOVA, A. N., PERESYPKIN, V. F., BOYKO, Yu. I., SHAVARINA, Z. A., CHUMAKOV, A. Ye., YAREMENKO, Z. I., PAYCHADZE, L. V., and EL'CHINAYEV, A. A., All-Union Institute of Plant Protection, Ukrainian Institute of Plant Protection, Ukrainian Agricultural Academy, Azerbaydzhan Institute of Agriculture, Central Asian Institute of Plant Pathology, and Kazan' Institute of Plant Protection, Georgian Institute of Plant Pathology

"Race Formation in Puccinia triticina Eriks. and P. striiformis West. in the USSR"

Leningrad, Mikologiya i Fitopatologiya, No 6, 1972, pp 428-434

Abstract: Study of the causative agents of orange leaf and stripe rusts of wheat in different parts of the Soviet Union and some other European countries showed that, despite the great variety of races, only a few are responsible for epiphytotics. The main races are fairly constant from year to year. This stabilization is due to the fact that that more than 90% of all the regionalized wheat varieties in the USSR are susceptible to all races of the pathogens. The racial composition of the pathogens in the USSR is similar to that occurring elsewhere in Europe because of the exchange of original forms and use of the

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USSR

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LESOVOY, M. P., et al., Mikologiya i Fitopatologiya, No 6, 1972, pp 428-434

same components in breeding wheat varieties. The appearance of new races and biotypes and changes in their virulence are the result of mutation, heterokaryosis, resistant varieties, and sexual hybridization.

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USSR UDC 539.4:621.791

BULATOV, Yu. V., YEROKHIN, A. A., and LOSEVA, G. I., Moscow

"Fractographic Analysis of Hot Cracks in Nickel Alloy Weld Seams"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 95-100

Abstract: For investigation of hot crack formation in nickel alloy weld seams by fractographic analysis the following materials were used: EI435 nickel alloy (⩽ 0.12% C, 19-23% Cr, ⩽ 0,7% Mn, ⩽ 0.8% Si 0.4% Ti (max) and ⩽ 0.2% Al; an experimental Ni-Nb-Al alloy (⩽ 0.04% C, 10-11% Nb, 5-6% Al, 0.15% Ti (max), 0.13% Fe). Comparison of data on the resistance of EI435 alloy to hot crack formation and fractographic analysis of the crack surface indicated that crack nucleation occurs in the solid-liquid state which is contradictory to the widely expressed opinion about the subsolidius nature of hot cracks in Ni-Cr alloys. Fractographic analysis of the experimental nickel alloy showed that cracks form in the solid state. Electron fractograms of the cracks showed that fracture occurs as intergranular failure of second phase particles without significant traces of plastic deformation. The experimental alloy is a precipitation hardening

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710005-1"

USSR

BULATOV, Yu. V., et al., Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 95-100

alloy with the phase γ' (Ni_3Al) primarily precipitated along the grain boundaries, which is the principal cause of hot crack origination. 2 figures, 12 bibliographic references.

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Welding

USSR

UDC: 621.791.053:678-1:66.012

SHUTOV, B. A. (Engineer) and YEROKHIN, A. A. (Doctor of Technical Sciences)

"Control of Weld Composition in Electron-Beam Welding of Dissimilar Metals"

Moscow, Svarochnoye proizvodstvo, Oct 71, no 10, pp 10-12

Abstract: In welding dissimilar metals it is essential to assure that the composition of the weld metal be maintained within specified and sometimes narrow limits. Inasmuch as the weld composition is determined by the melting extent of each of the metals being joined, it becomes necessary to distribute the source energy flux between the elements in such a manner as to achieve the required ratio of melting rates between each of the elements. The central point of interest here is therefore the rated position of the heating spot relative to the weld axis. This study discusses conditions for electron-beam welding to provide a specific composition of the weld metal as well as regularities in the distribution of the electron beam heat energy between the edges of dissimilar-grade metals for cases involving beam axis displacement relative to the butt. Formulas have been derived to calculate the proper position of the welding source with permissible deviations. A method

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USSR

SHUTOV, B. A. (Engineer), et al, Svarochnoye proizvodstvo, Oct 71, no 10, pp 10-12

is proposed involving the use of two independent electron beams to make possible proper proportioning and distribution of heat energy over the weld edges and insure high-quality welds. A case of welding copper to low-carbon steel is discussed for illustration. The experimental results show good agreement with the rated data.

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USSR UDC 621.791.856.019:546.76/78

SOROKIN, L. I., and YEROKHIN, A. A.

"Influence of Chromium, Molybdenum, and Tungsten on Pore Formation in Nickel Alloy Welding"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 70, pp 71-72

Abstract: Investigations carried out at the Institute of Metallurgy imeni A. A. Baykov on the influence of Cr, Mo and W on pore formation are reported. The experiments were conducted on Ni-Cr-Mo and Ni-Cr-W experimental alloys with 0 to 20% W, 0 to 30% Mo, and 8, 15, and 20% Cr. The tendency to pore formation was studied by radiographic examination of wleds obtained by a nonconsumable electrode in an argon nitrogen mixture. It is shown that the higher the gas solubility, the smaller the likelihood of supersaturation of the bath metal and the probability of the formation of gas bubbles, and, consequently the smaller is the risk of pore appearance.

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USSR

UDC 621.791.85

YEROKHIN, A. A., KRAVCHENKO, V. F., and KHUDYSHEV, A. F., Moscow

"Efficiency of the Electron Beam Fusion (Welding) Process"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 131-133

Abstract: An investigation is made of the energy losses resulting from the effect of electron beams in the welding range. It is shown that in the case of deep penetration of fusion for beams with relatively large total and specific power, in order to explain the high efficiency of the process it is necessary, when estimating the energy losses by the theory of scattering and reflection of the electrons, to consider the thermal effect of the beam on the material causing the occurrence and development of a "channel" in the fusion zone. The interaction of the electron flux with the solid state is accompanied by a number of processes and phenomena whose qualitative and quantitative characteristics are determined primarily by such initial data as the parameters of the electron beam and the treated material. It is pointed out that the basic parameters of the beam are the energy and specific power, and of the material (as applied to metals), the atomic number and thermophysical constants.

Investigation of theoretical papers and experimental results on scattering of electrons in atoms shows that the majority of energy losses as applied to the weld zone belong to reflected (back-scattered) electrons. In iron, for example, η_0

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USSR

YEROKHIN, A. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 131-133

[the energy losses to reflection of electrons] is about 20 percent of Q_e -- the energy of the electron beam at the bombardment point. The coefficient of reflection and mean energy of the back-scattered electrons do not depend on the process parameters and temperature of the metal, but are determined by the atomic number (nuclear charge) of the material bombarded by the beam. The estimated losses to radiation, x-radiation, and secondary and thermal electron emission demonstrated that the total energy losses do not exceed 10 percent of the total energy of the beam.

Graphs are presented of the efficiency of the fusion (welding) process as a function of the beam current, the shape factor of the weld, and the opening of the gap for accelerating voltages of 20 kv.

It is pointed out that the numerical values obtained as a result of the experiment are determined to a great extent by the parameters of the electron-optical system, the accelerating voltage, and the energy distribution with respect to the beam cross section. However, the nature of the relations is not retained throughout the entire weld zone. For thermal calculations during electron beam welding, it will be necessary to establish η_w (the effective efficiency) as a function of the concentration coefficient of the source as applied to various materials.

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1/2 019 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--WAYS OF ELIMINATION OF POROSITY IN WELDING THE AMG6 ALLOY IN DIFFERENT SPATIAL POSITIONS -U-

AUTHOR-(02)-OBTUROV, V.I., YEROKHIN, A.A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, 70, PP 17-18

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM ALLOY, BIBLIOGRAPHY, WELD JOINT POROSITY, POROUS METAL, ALLOY DESIGNATION/(U)AMG6 ALUMINUM MAGNESIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/2043 STEP NO--UR/0135/70/000/001/0017/0018

CIRC ACCESSION NO--AP0118997

UNCLASSIFIED

2/2 019 UNCLASSIFIED

CIRC ACCESSION NO--AP0118997 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INVESTIGATIONAL DATA QUOTED IN THIS ARTICLE SHOWED THAT SPATIAL POSITION OF THE WELDED PARTS EXERTS AN INFLUENCE ON THE POROSITY OF JOINTS IN THE WELDING OF THE AMG6 ALLOY.

UNCLASSIFIED

Welding

USSR UDC 621.791.053:62.192.47:669.715

OBOTUROV, V. I., Engineer, YEROKHIN, A. A., Doctor of Technical Sciences

"Means of Eliminating Porosity During Welding of AMg6 Alloy in Various Positions"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 70, pp 17-18

Abstract: Porosity of AMg6 alloy welds is caused mainly by moisture contained in the oxide film of the parent metal and electrode. Thorough cleaning of the filler wire and the edges to be welded is an effective way of eliminating porosity. However, experience shows that the recommended means of surface preparation for welding in a downhand position does not guarantee pore-free welds in other positions. To find the most favorable position for welding the AMg6 alloy, specimens of the alloy (2 and 4 mm thick) were butt welded on an automatic argon-shielded arc welder.
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OBOTUROV, V. I., et al., Svarochnoye Proizvodstvo, No 1, Jan 70, pp 17-18

Before welding, the specimens and filler wire were pickled in alkali, and the welding edges were thoroughly cleaned with a scraper. After such surface preparation, porosity depends only on the welding position. It was found that porosity increases when the angle of rotation of a welded specimen increases from 0 to 180°, and reaches the maximum at the overhead position. The porosity of joints welded in the overhead position can be practically eliminated by applying flux to the other side of the parts to be welded. The time between the preparation and welding should be as short as possible to prevent oxidation and accumulation of dust on the cleaned parts.

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USSR

UDC 621.791.053.01:669.14.018.14

SOROKIN, L. I., Candidate of Technical Sciences, YEROKHIN, A. A., Doctor of Technical Sciences

"Effect of Carbon, Silicon, Manganese and Magnesium on the Properties of the Weld Metal When Welding Heat-Resistant Alloys"

Moscow, Svarochnoye proizvodstvo, No 9, 1972, pp 12-13

Abstract: A study was made of the effect of possible fluctuations in the concentrations of carbon, silicon, manganese and magnesium on the technological strength and mechanical properties of the weld metal of the Ni-Cr-Mo system. In experiments with variation of the carbon content from 0.03% to 0.29% it was found that the properties of the metal depend only on the carbon concentration and not on the means of introducing it into the weld metal. Independently of the composition and nature of the structure of the weld metal, with an increase in silicon content to 0.5-0.7% there is a sharp increase in the critical deformation rate. A further increase in the silicon leads to a sharp decrease in the critical rate. For manganese it was found that the resistance to the formation of hot cracks varies identically to the metal fused by the electrodes with silicon, but the peaks on the v_{cr} -- % Mn curves are at a lower level than with silicon and have a less expressed nature. The highest resistance to the formation of hot cracks was achieved using a 20% nickel-magnesium hardener as

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SOROKIN, L. I., et al., Svarochnoye proizvodstvo, No 9, 1972, pp 12-13

the deoxidizer. Thus, in order to increase the technological strength and mechanical properties when welding heat-resistant alloys based on nickel it is expedient to limit the carbon content in the weld metal to no more than 0.08% and the silicon content to no more than 0.6% and to use manganese and magnesium as the deoxidizers in the electrode coatings, the concentrations of which are selected experimentally as a function of the electrode composition.

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UDC 621.791:621.7.044.2:669.295 + 669.71

YEROKHIN, A. V., Engineer, KAZAK, N. N., SEDYKH, V. S., and TRYKOV, Yu. P., Candidates of Technical Sciences, and ULITIN, A. I., Engineer, Volgograd Polytechnic Institute

"Properties of Titanium-Aluminum Joints Produced by Explosive Welding"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 1972, pp 26-27

Abstract: The optimal parameters are determined for explosive welding of joints of titanium with aluminum and three-layer composite joints of AMg6-AD1-OT4, having strengths of 10-12 kg/mm^2 and rupturing through the aluminum when tested. The titanium-aluminum joints produced by explosive welding can withstand extended heating to 500-550°C, according to the temperature-time conditions of formation of intermetallic compounds on the division boundary of the layers, and can be used for various technological processes. A pilot scale technology is developed for explosive welding of titanium-aluminum joints, guaranteeing stable strength values.

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USSR

UDC: 531.571/572

YEROKHIN, B. T., Moscow

"Physical Model of the Onset of Turbulent Combustion of Condensed Systems in a Partially Enclosed Space"

Moscow, Izv. AN SSSR: Energetika i Transport, No 3, May/Jun 72, pp 129-134

Abstract: A hypothetical physical model is proposed for the onset of turbulent (erosion) combustion of condensed systems in a partially enclosed space. The given model explains contradictory data concerning the quantitative aspect of the threshold velocity of turbulent combustion, i. e. the dependence of the threshold velocity on such factors as the geometric characteristics of the condensed system (the degree of flow turbulence in the input section of the channel), pressure, nonuniformity of the combustion surface, injection of material from the lateral surface and the like. In the proposed model, turbulent combustion of condensed systems is identified with a transition from laminar to turbulent motion. The time of onset

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YEROKHIN, B. T., Izv. AN SSSR: Energetika i Transport, No 3, May/Jun 72, pp 129-134

of turbulent combustion, which is due to the penetration of turbulent vortices into the smoke-, vapor- and gas-filled zone in accordance with the Rayleigh theorem, is determined by locating the inflection point on the velocity profile of the gas flow in the combustion zone.

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USSR

UDC: 531.571/572

YEROKHIN, B. T., FEDOROV, Yu. I., Moscow

"An Analytical Method of Calculating Gas-Dynamic Parameters in a Semi-closed Space With Regard to Nonhomogeneity of the Velocity Profile and Turbulent Combustion of Condensed Systems"

Moscow, Izv. AN SSSR: Energetika i Transport, No 4, Jul/Aug 72, pp 131-134

Abstract: An analytical method is proposed for calculating gas-dynamic parameters of a condensed system in an axisymmetric channel with regard to nonhomogeneity of the velocity profile with respect to the cross section of the flow and taking account of the effect of turbulent combustion. In deriving the basic expressions, forces of friction, forces of inertia and heat conduction are disregarded. Heat losses are accounted for by introducing a special coefficient. Compressibility of the gas and hydrodynamic losses are also accounted for. The proposed method can be used to calculate gas-dynamic parameters with respect to channel length of the condensed system and with respect to the time of the process in a semiclosed space with accuracy sufficient for practical purposes for average cross sectional areas $\overline{F}_l = F_r/F_{cr} \geq 1.5\text{-}1.7$.

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USSR

UDC 536.46+662.215.2

YEROKHIN, B. T. and RAYZBERG, B. A.

"Pressure Changes in the Initial Combustion Period of a K System in a Half-Enclosed Space"

Novosibirsk, Fizika Goreniya i Vzryva, vol 7, No 4, December 1971, pp 488-492

Abstract: It has been established that the reduction in the cross section of a condensed system causes a sharp increase in pressure and leads to unstable processes in a half-enclosed space. This, in some cases, has resulted in quenching of the k-system with repeated spontaneous combustion, known as "sneezing," when the pressure diagram is discontinuous. The need has thus arisen for a criterion which would make possible the choice of initial conditions in which the pressure rise and the instability of the processes are not repeated. The present article discusses what the authors consider to be the most viable of such criteria, designated as $\varkappa$ and proposed by Yu. A. Pobedonostsev. The criterion is equal to the ratio of the burning surface in the channel of the k system to the channel cross-section area. However, the criterion is deemed not sufficiently general and does not take into account the effect of turbulent combustion, hydrodynamic losses, flow velocity, and

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YEROKHIN, B. T., et al, Fizika Goreniya i Vzryva, vol 7, No 4, December 1971, pp 488-492

geometrical characteristics. The authors improve this criterion by taking as their initial point a system of equations for the motion of the combustion products in the k-system channel with the gas resulting from the combustion of the k-system distributed over its length, and by using the quasi-stationary principle according to which terms in the system of equations reflecting the nonstationary aspects of the process are neglected. Formulas are derived for determining the rise in pressure caused by turbulent combustion and hydrodynamic losses and for selecting optimal dimensions of the k-system channel.

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USSR

YERCKHIN, G.A.

UDC 621.396.677.73

"Synthesis Of Horn Antenna"

Moscow, Radiotekhnika, Vol 26, No 12, Dec 1971, pp 74-81

Abstract: A method is proposed for synthesis of a horn antenna with impedance boundary conditions at the walls of the horn, which makes it possible to synthesize hornantennas for a specified distribution of the field in the aperture plane of the horn and for an arbitrary width of the exciting waveguide. It is possible by the same method to solve the problem of the junction of two plane waveguides with a specified structure of the field in the second waveguide. The results of calculations and experimental studies are presented. Received by editors 21 June 69. 6 ill. 3 ref.

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1/2 034 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--ANTENNA -U-

AUTHOR--TERESHIN, O.N., YEROKHIN, G.A., YUVKO, A.N.

COUNTRY OF INFO--USSR

SOURCE--PATENT NO 263693

REFERENCE--MOSCOW, OKTRIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI NO 8,

DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., PHYSICS

TOPIC TAGS--HORN ANTENNA, ANTENNA ENGINEERING, ANTENNA RADIATION PATTERN, PATENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1094 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0112216

ZZZZZZZZZZZZ UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AA0112216

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS AUTHOR'S CERTIFICATE INTRODUCES AN ANTENNA MADE IN THE FORM OF A RECTANGULAR HORN. THE WALLS OF THE HORN WHICH DIVERGE FROM THE WIDE WALLS OF THE FEEDER WAVEGUIDE HAVE A RIBBED SURFACE FORMED BY TRANSVERSE GROOVES. TO PRODUCE A MESA OR COSECANT SHAPED RADIATION PATTERN IN THE E PLANE, THE DEPTH OF THE GROOVES IS VARIED OVER THE LENGTH OF THE ANTENNA, THE LAW OF THE RIB ENVELOPE BEING CLOSE TO PARABOLIC.

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USSR

UDC 621.396.677.732

TERESHIN, O. N., YEROKHIN, G. A., YUVKO, A. N.

"Synthesis of Horn Antennas with Impedance Walls"

Tr. Mosk elektrotekhn. in-ta svyazi (Works of Moscow Electrotechnical Communications Institute), 1969, vyp. 1, pp 222-225 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8B66)

Translation: This article contains an investigation of the possibility of obtaining a given phase-amplitude field distribution in the aperture of horn antennas with impedance boundary conditions on the horn walls. It is proposed that the field of the exciting source have the nature of TM-waves. There are three illustrations and a seven-entry bibliography.

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USSR

UDC: 621.396.677.73(088.8)

TERESHIN, O. N., YEROKHIN, G. A., YUAKO, A. N., Moscow Electrical Engineering Institute of Communications

"An Antenna"

USSR Author's Certificate No 263693, filed 24 Sep 68, published 4 Jun 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12B77 P)

Translation: This Author's Certificate introduces an antenna in the form of a rectangular horn with ribbed walls in the aperture section. The antenna is excited through a waveguide junction which widens out in the H plane. The ribbed walls of the horn are a continuation of the wide walls of the junction; the grooves are rectangular and parallel to the wide walls of the feeder; the spacing of the grooves is 0.1 of a wavelength in free space. The depth of the grooves varies with respect to the length of the antenna in such a way that the envelope of the ribs is described by a parabolic law. This design provides a radiation pattern of plateau or cosecant shape in the E plane. One illustration. N. S.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710005-1"

Antennas

USSR

UDC 621.396.677.73

TERESHIN, O. N., YEROKHIN, G. A., YUVKO, A. N., Moscow Electrical Engineering Institute of Communications

"Antenna"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, 10 Feb 70, pp 42-43, Patent No 263693, Filed 24 Sep 68

Translation: This Author's Certificate introduces an antenna made in the form of a rectangular horn. The walls of the horn which diverge from the wide walls of the feeder waveguide have a ribbed surface formed by transverse grooves. To produce a mesa or cosecant shaped radiation pattern in the E plane, the depth of the grooves is varied over the length of the antenna, the law of the rib envelope being close to parabolic.

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USSR UDC 621.396.677.73

TERESHIN, O. N., YEROKHIN, G. A. and YUVKO, A. AN.

"Synthesis of Two-Dimensional Impedance Horn Antennas According to a Specific Distribution in the Aperture"

Moscow, Radiotekhnika, Vol 25, No 1, Jan 70, pp 63-69

Abstract: A method is outlined for the synthesis of impedance horn antennas according to the field distribution in the aperature. The relationship between the field distribution in the aperture and the required radiation pattern may be determined on the basis of relations known from the classical theory of radiation system sunthesis. Possible ways for specifying the field structure satisfying the wave equations and ensuring the possibility of selecting any given field distribution in the aperture are analyzed. The method is illustrated by the synthesis of a horn antenna having a sector-shaped radiation pattern. The results are presented in graphs in the form of relief and impedance functions, as well as radiation patterns (theoretical and experimenta). It is concluded that this method makes it possible to synthesize the horn antennas with impedance walls, whose experimental radiation patterns coincide well with theoretical ones. Orig. art. has 7 figures and 17 formulas.
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UDC: 621.317.738:665.61-911.48

USSR

YEROKHIN, V. V.

"Dielectric Permeability of Petroleum Emulsions as a Function of Frequency"

Tr. Metrol. In-tov SSSR [Works of Metrological Institutes, USSR], 1972, No 131(196), pp 98-102 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.1122, by V. S. K.).

Translation: Experimental results of measurement of dielectric permeability (DP) and loss angle tangent of petroleum emulsions with high moisture content in the frequency range from $2 \cdot 10^2$ to $8 \cdot 10^7$ Hz are presented. The measurements were performed using bridges with close inductive coupling and a type E9-5A Q-meter. In the frequency range from $2 \cdot 10^2$ to $2 \cdot 10^4$ Hz, the bridge core was transformer iron, from 10^5 to 10^6 Hz -- a ferrite loop with $\mu = 2000$, and at frequencies from $1.5 \cdot 10^6$ to $8 \cdot 10^7$ Hz -- the E9-5A Q-meter. In the range of audio frequencies, the bridge was supplied by a type 3G-10 audio oscillator, in the radio frequency range -- by a G4-1A standard signal generator. The indicator used was a type V3-7 cathode voltmeter with a scale of 1 mv. After the insulation was tested, the sensor was calibrated. The sensor was a flat condensor in an organic glass body with an interelectrode space of 1 cm and

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1/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CORROSION PROTECTIVE PROPERTIES OF SILICONE LIQUIDS AND DIOCTYL SEBACATE -U-

AUTHOR-(05)-SMIOTANKO, E.A., SHEKHTER, YU.N., NIKONOROV, YE.M., YEROKHIN, G.S., SHVETSOVA, V.T.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 14-16

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--CORROSION PROTECTION, SILICONE, COPPER ALLOY, LUBRICANT PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1674 STEP NO--UR/0318/70/000/002/0014/0016

CIRC ACCESSION NO--AP0118652

UNCLASSIFIED

2/2 029 UNCLASSIFIED

CIRC ACCESSION NO--AP0118652 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A RELATION WAS OBTAINED BETWEEN THE RELATIVE ELEC. RESISTANCE (R) AND THE RELATIVE POLARIZATION RESISTANCE (R SUBP) OF THIN LUBRICANT LAYERS ON METAL SURFACES AND THE ELECTROCHEM. CORROSION. DIOCTYL SEBACATE (I) OR VARIOUS COM. SILICONE OILS (POLY(METHYLSILOXANE), POLY(METHYLPHENYLSILOXANE), POLY(ETHYLSILOXANE), POLY(METHYL,GAMMA,TRIFLUOROPROPYLSILOXANE)) DO NOT PROTECT CU PLATES AGAINST A RAPID WT. LOSS IN 0.5N NACL SOLN. AND HAVE LOW R AND R SUBP VALUES (IN 0-30.0PERCENT RANGE). THE ADDN. OF 2PERCENT CORROSION INHIBITOR, SUCH AS "UREA SUCCINIMIDE", TO I INCREASED ITS R FROM 5.0 TO 98.8PERCENT, ITS R SUBP FROM 0 TO 66PERCENT, AND CONSIDERABLY REDUCED THE ELECTROCHEM. CORROSION OF CU PROTECTED WITH IT.

UNCLASSIFIED

USSR

UDC: 533.6:534.1

YEROKHIN, I. P.

"On Determining the Seismic Pressure of Water On Massive Structures"

Izv. VNII gidrotekhn. (News of the All-Union Scientific Research Institute of Hydraulic Engineering), 1970, 93, pp 113-118 (from RZh-Mekhanika, No 4, Apr 71, Abstract No 4V269)

Translation: For an infinitely long dam of trapezoidal cross section supporting a layer of ideally compressible fluid, the author determines the hydrodynamic pressure when the base of the dam undergoes sinusoidal (in time) seismic oscillations in the horizontal plane. Wave motions of the fluid on the upper (free) surface of the layer are disregarded, and the lower boundary is assumed to be absolutely rigid. Quantitative estimates are given of the possibility for analyzing the horizontal oscillations of the dam together with the base instead of rotational vibrations around the seismic center of oscillations. Yu. G. Balakirev.

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USSR

UDC 534-8

KAL'YANOV, B. I., YEROKHIN, N. F.

"Measurement of the Speed of Ultrasound by a Pulse-Phase Method of Two Fixed Distances"

Tr. Taganrog radiotekhn. in-ta (Works of Taganrog Radioengineering Institute), 1971, No. 22, pp 104-106 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh509)

Translation: Determining the speed of ultrasound by a pulse-phase method of one fixed distance involves a systematic error imparted by the phase error $\phi(\omega)$, which is caused by amplification, conversion, and reflection of the acoustical signal from the reflector. When the acoustical pulses are emitted by a piezo-plate in both directions and are reflected from reflectors and again received by the same plate which is a phase-sensitive element, $\phi(\omega)$ for both pulses is essentially the same. The phase difference of both pulses at a frequency ω is therefore equal to $2\Delta x\omega/v$, where Δx is the difference in the distances of the surfaces of the plates to the corresponding reflectors and v is the speed of ultrasound in the liquid being studied. In measuring the phase distances,

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KAL'YANOV, B. I., YEROKHIN, N. F., Tr. Taganrog radiotekhn. in-ta, 1971, No. 22, pp 104-106

one finds that $\delta(\Delta\phi) = 2\pi\Delta n$ and $v = 2\Delta z\Delta\nu/\Delta n$. Measurements in distilled water agree with data of other methods of measurement. The technique is of interest in measurements in autoclaves. A schematic of the device is given. L. A. Dikarev.

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1/2 018 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--STATISTICAL BASIS OF THE KINETIC EVALUATION OF THE EFFECTIVITY OF ANTICANCER INFLUENCES IN THE COURSE OF THE EXPERIMENT -U-

AUTHOR-(04)-EMANUEL, N.M., KUKHARENKO, YU.A., DRONOVA, L.M., YEROKHIN, V.N.

COUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIYA BIOLOGICHESKAYA, 1970, NR 2, PP 224-228

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STATISTIC ANALYSIS, ANTITUMOR DRUG EFFECT, TUMOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0949 STEP NO--UR/0216/70/000/002/0224/0228

CIRC ACCESSION NO--AP0109106

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70
CIRC ACCESSION NO--AP0109106
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MATHEMATICAL BASIS FOR THE CRITERION OF EFFECTIVITY OF ANTITUMOR INFLUENCES AS WELL AS A METHOD OF CONSTRUCTION OF CONFIDENTIAL INTERVALS IN ORDER TO OBTAIN MEAN VALUES REGARDING TWO NORMAL AGGREGATES ARE PROPOSED. THE FORMULAS OBTAINED ARE APPLIED FOR THE ANALYSIS OF EXPERIMENTAL KINETIC CURVES DESCRIBING TUMOR GROWTH. THE RESULTS ARE COMPARED WITH THOSE OBTAINED BY MEANS OF A TRANSFORMATION METHOD PROPOSED EARLIER. THE LIMITS OF APPLICATION OF THE LATTER ARE DISCUSSED. FACILITY: INSTITUTE OF CHEMICAL PHYSICS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203710005-1"

Acc. Nr: AP0047223

Ref. Code: UR 0216

PRIMARY SOURCE: Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, 1970, Nr 1, pp 87-92

Emanuel', N. M.; Dronova, L. M.; Yerokhin, V. N.; Belich, Ye. I.

INFLUENCE OF SOME ANTITUMOR SUBSTANCES OF A DEVELOPED SCHWEZ ERYTHROMYELOSIS IN RATS

Institute of Chemical Physics, Academy of Sciences, USSR

Regressions of developed subcutaneous tumor in rats suffering from the Schwez erythromyelosis proceeds with the same speed when either eloxene (5 *mg/kg*) or sarcolysine (1 *mg/kg*) are injected on the 4^{th}—7^{th} day after inoculation. A correlation between the variation of the tumor diameter and the erythrocytes number in the blood was shown.

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REEL/FRAME
19790725

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USSR

UDC 621.396.6-181.48

GORLOV, M. I., YEROKHIN, V. S., NEKRASOV, V. A., and CHERNYSHOV, V. V.

"Character of the Changes in the Noise Properties of DTL Type (Diode-Transformer Logical) Integrated Circuits Depending on Type of Testing"

Sb. tr. po poluprovodnikovym materialam, priboram i ikh primeneniyu (Collected Works on Semiconductor Materials, Instruments and Their Use), Voronezh, 1971, pp 182-188 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 V223)

Translation: The authors analyze the results of tests performed on four sets of microcircuits with approximately the same noise level values for each set. The microcircuits were subjected to various types of influences: effect of humidity, thermocycling, tests for cold and heat resistance, and, in addition, all microcircuits were subjected to testing for 500 hours with respect to operational reliability at +125° under switching conditions. Original article: five illustrations, one bibliographic entry. N.S.

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USSR

UDC: 8.74

KUZIN, L. T., YEROKHIN, Ye. A., SMOLYAKOV, V. A.

"Linguistic Model of Organization of a Certain Class of Movements"

Moscow, Inzh. mat. metody v fiz. i kibernet.--sbornik (Engineering Mathematics Methods in Physics and Cybernetics--collection of works), vyp. 2, Atomizdat, 1973, pp 92-98 (from RZh-Matematika, No 10, Oct 73, abstract No 10V789 by A. Doroshenko)

Translation: The creation of cybernetics devices which could perform complicated functions without the direct participation of man involves the problem of creating an artificial intelligence. Simulation of movements is one of the specific components of this problem. The paper examines the possibility of solving the problem of controlling mechanical manipulators by using Chomsky's structural linguistics apparatus. The manipulator considered is a three-link mechanism in which the first link has two degrees of freedom, the second has one, and the third has three. On the end of the third link is an attachment for grasping a target which is positioned in space by two angles and the distance from the coordinate origin. The flowchart for solution of the problem includes a linguistic model of movement control and the algorithmic part of movement plotting. A grammar is

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USSR

KUZIN, L. T. et al., Inzh. mat. metody v fiz. i kibernet., vyp. 2, Atomizdat, 1973, pp 92-98

constructed for solution of the given problem. The authors define a set of symbols which form the terminal vocabulary (aggregate of elementary movements) and the nonterminal vocabulary: the initial symbol; the group of symbols corresponding to the list of main actions; the group of symbols corresponding to compound motions. The rules of the grammar are presented. An example of derivation of the action "Transfer" is described.

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USSR

KUZIN, L. T., YEROKHIN , YE. A. and SMOLYAKOV, V. A.

"A Linguistic Model of the Organization of a Certain Class of Motions"

Inzh. Mat. Metody v Fiz. i Kibernet. [Engineering Mathematics Methods in Physics and Cybernetics -- Collection of Works], No 2, Moscow, Atomizdat Press, 1973, pp 92-98 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V789)

Translation: The creation of cybernetic devices capable of performing complex functions without direct participation by man is related to the problem of creation of artificial intelligence. The imitation of motions, in particular, is one component of this problem. This work studies the possibility of solving the problem of control of a mechanical manipulator using the apparatus of Khomskiy structural linguistics. As a manipulator, a three-link mechanism is studied, in which the first link has two degrees of freedom, the second link has one and the third link has three. At the end of the third link is a device for clamping of the target, which is fixed in space by two angles and the distance from the origin of the coordinates. The structural plan of the solution of the problem includes a linguistic model of the control of motion and the algorithmic portion of the construction of motion. A grammar is constructed for solution of this problem. The set of symbols form-

USSR

KUZIN, L. T., YEROKHIN, YE. A. and SMOLYAKOV, V. A., Inzh. Mat. Metody v Fiz. i Kibernet., No 2, Moscow, Atomizdat Press, 1973, pp 92-98

ing the terminal dictionary (set of elementary motions) and nonterminal dictionary is defined: the initial symbol; the group of symbols corresponding to inscription of the basic actions; the group of symbols corresponding to complex motions. The rules of the grammar are presented. An example of performance of the action "tranfer" is described.

A. Doroshenko

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USSR

UDC 576.851.315.097.5.078.39

DOMARADSKIY, I. V. and YEROKHIN, Ye. P., Rostov-na-Donu Scientific Research Antiplague Institute

"A Method of Determining Vibriocidal Antibodies From the Fermentation of Carbohydrates"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1971, pp 31-33

Abstract: The proposed method of determining vibriocidal antibodies in human serum is based on the principle that microbial growth, i.e., the absence of vibriocidal antibodies, can be judged from the fermentation of sucrose revealed by an indicator. The dilution of serum and complement, preparation and addition of microbes, and the tests themselves are carried out the same way as in Finkelstein's method (except that sucrose and Andrade's indicator are added to the specimens). The proposed method is more efficient than Finkelstein's because it does not require cultivation of the microbes in dishes and counting the colonies, and the results can be obtained the same day. The two methods yielded similar results when applied to sera taken from cholera patients, vibrio carriers, persons vaccinated against cholera, and healthy persons.

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1/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ON MOLECULAR ORGANIZATION OF PIGMENT SYSTEM OF SOME PURPLE PHOTOSYNTHETIC BACTERIA -U-

AUTHOR-(02)-YEROKHIN, YU.YE., SENEGUB, O.A.

COUNTRY OF INFO--USSR

SOURCE--MOLEKULYARNAYA BIOLOGIYA, 1970, VOL 4, NR 3, PP 401-410

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BIOLOGIC PIGMENT, PHOTOSYNTHESIS, ENZYME, LIPOPROTEIN, ELECTRON MICROSCOPY, PHOSPHOLIPID, BACTERIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0166 STEP NO--UR/0463/70/004/003/0401/0410

CIRC ACCESSION NO--AP0120866

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120866

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HIGH TEMPERATURE, PROTEOLYTIC AND LIPOLYTIC ENZYMES ON THE STATE OF BACTERIOCHLOROPHYLL (BCHL) IN VIVO WAS STUDIED. THE PROTEOLYTIC ENZYMES DESTROY THE LONG WAVE ABSORPTION MAXIMA (8890) IN THE CHROMATOPHORES OF CHROMATIUM. THE LIPOLYTIC ENZYMES CAUSE REARRANGEMENT OF B850 INTO A NEW FORM, B830. DISAPPEARANCE OF 8890 ABSORPTION IS DUE TO DESTRUCTION OF ITS PROTEIN CARRIER AND FORMATION OF B830 IS DUE TO RUPTURE OF LIPIDS (PHOSPHOLIPIDS) OF LIPOPROTEIN CARRIER B850. HIGH TEMPERATURE CAUSED THE DESTRUCTION PRIMARILY OF 8890 AND THEN OF B850 IN A NARROW TEMPERATURE INTERVAL CORRESPONDING TO PROTEIN DENATURATION. THE DATA OF THE ELECTRON MICROSCOPY SHOW THE CHANGES IN THE STRUCTURE OF CHROMATOPHORES UNDER THE ACTION OF ENZYMES STUDIED. SUGGESTIONS ON THE NATURAL STATE OF BCHL ARE PRESENTED. FACILITY: INSTITUTE OF BIOCHEMISTRY, ACADEMY OF SCIENCES. FACILITY: BIOPHYSICAL DEPARTMENT OF THE SECOND MEDICAL INSTITUTE, USSR, MOSCOW.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--QUADRUPOLE MOMENT OF CADMIUM 114 IN THE FIRST EXCITED STATE -U-

AUTHOR-(05)-ANDREYEV, D.S., GUSINSKIY, G.M., YEROKHINA, K.I., KUDOYAROV, M.F., LEMBERG, I.KH.
COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(8), 369-70

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--EXCITED STATE, CADMIUM ISOTOPE, CYCLOTRON, QUADRUPOLE MOMENT, CHARGED PARTICLE, ALPHA PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0515 STEP NO--UR/0386/70/011/008/0369/0370

CIRC ACCESSION NO--AP0137604
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137604

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE QUADRUPOLE MOMENT Q SUB2 POSITIVE) OF PRIMELI4 CD WAS DETD. IN A CYCLOTRON BY USING THE SIMULATANEOUS ACCELERATION OF SINGLY CHARGED 8-MEV ALPHA PARTICLES AND TRIPLY CHARGED 24 MEV C IONS; Q SUB2 POSITIVE EQUALS MINUS (0.53 PLUS OR MINUS 0.17) B. FACILITY: FIZ.-TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASS. D

USSR

UDC: 539.16.08

YEROKHINA, K. I., LEMBERG, I. Kh., PASTERNAK, A. A., Physicotechnical Institute imeni A. F. Ioffe, Soviet Academy of Sciences

"Attenuation of the Doppler Shift of the Energy of Gamma Rays Emitted as a Result of Coulomb Excitation"

Moscow, Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1595-1608

Abstract: Ge(Li) gamma-ray detectors with their inherent high resolution give additional information on the lifetimes τ of excited states based on measurements of attenuation of the Doppler shift of gamma-ray energy. Comparison of data on the partial lifetimes $\tau(E2)$ obtained in research on Coulomb excitation by measuring the absolute yields of gamma rays with the values of τ obtained in these same studies as a result of measurements of Doppler shift attenuation gives the possibility of computing the reduced probabilities B(M1) of magnetic dipole transitions. In this paper the theoretical shape of the Doppler-shifted gamma line is calculated by approximating the exact distribution function using a convenient expression which is true for any directions of the recoil nuclei. A comparison of

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YEROKHINA, K. I. et al., Izvestiya Akademii Nauk SSSR: Seriya Fizicheskaya, Vol 37, No 8, Aug 73, pp 1595-1608

the experimental shape of the Doppler-shifted line with the expression given in this paper for the theoretical shape of the line showed satisfactory agreement. More than fifty lifetimes of levels in thirty nuclei with mass numbers from 52 to 133 were determined. The range of measured values of τ was from 0.05 to 3 ps. The average time for computer processing of one gamma line was 15-20 minutes. The lifetimes were measured for the first time for 25 of the excited states.

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Nuclear Physics

USSR

ANDREYEV, D. S., GUSINSKIY, G. M., YEROKHINA, K. I., KUDOYAROV, I. K. H., LEMBERG, I. K. H., CHUGUNOV, I. N., Physico-Technical Institute imeni A. I. Ioffe, Academy of Sciences, USSR

"Quadrupole Moment of the Nucleus ^{114}Cd in the First Excited State"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 8, 20 Apr 70, pp 369-370

Abstract: In the present work a cyclotron is used for the first time to determine the value of the quadrupole moment (Q_{2+}) of the first excited state in ^{114}Cd. In order to eliminate the effect of instability of the intensity and energy of accelerated ions on the results of measurements, the experiments employed simultaneous acceleration of the singly charged α particles and the triply charged ions of carbon with energies of 8 and 24 Mev respectively. In this case the value of the Coulomb parameter ζ for both kinds of particles is practically identical and errors originating during comparison are minimal. In separate experiments it was shown that during simultaneous acceleration the ratio of the energies of the light and heavy particles is preserved with a precision not worse than 0.1 percent, and the error of determining Q_{2+} connected with this does not exceed 10 percent.

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USSR

ANDREYEV, D. S., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 11, No 8, 20 Apr 70, pp 369-370

In contrast to other work in which the spectra of γ rays were registered in accordance with ions selected by energy, in the present work the spectra of backward-scattered ions were measured in accordance with γ-quanta selected by energy. The value of Q_2^+ was determined as:

$$Q_2^+ = -(0.53 \pm 0.17) \text{ barn.}$$

This contrasts with three other works in which the value of Q_2^+ lies in the limits $-(0.42 + 0.90)$ barn and a later work in which the value of Q_2^+ is close to zero. 6 ref. Received by editors 10 March 1970.

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Acc. Nr: AT0102946 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code: 4R0139

116390t Effect of thermal treatment of the film on the intensity of the vibrational band for silicon-oxygen bonds in passivating films. Ivanova, E. N.; Latyshev, A. N.; Synorov, V. F.; Erokhina, L. E.; Ogurtsova, M. P. (Voronezh. Gosuniv., Voronezh, USSR). *Izv. Vyssh. Ucheb. Zaved., Fiz.* 1970, 13(1), 154–5 (Russ). The effect of heating on the intensity of absorption band of the Si–O bonds of SiO at 10 μ was investigated. The monoxide films were obtained by thermal dusting SiO and quartz oxide in vacuo (5×10^{-5} torr) on polished Si plates. Thermal treatment was carried out at 300 and 500° for 5–30 min. A shift of absorption band from 10 to 9.3 μ together with a gradual increase of its intensity was obsd. in dependence on the heating degree. The layers of 1–1.3 μ, for which no interference effect was to be taken into account, were used to obtain the abs. absorptivity value. The spectrum of a 1-μ thick film before and after the 20- and 30-min heating in Ar at 510° was studied. The transmissivity changes of the film, caused by the effect of its thermal treatment, are 2%. An increase of the absorption band intensity in the spectrum of the film is due to a gradual transition of Si monoxide to dioxide at a const. no. of O atoms. This effect must be taken into consideration for the detn. of stoichiometric compn. of passivating films by ir spectroscopy.

Vaclav Sara

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REEL/FRAME 19861012

18

Acc. Nr.: AP0029085 Ref. Code: UR 0246

PRIMARY SOURCE: Zhurnal Nevropatologii i Psikhiatrii, 1970, Vol 70, Nr 1, pp 76-80

CHANGES OF BIOELECTRICAL BRAIN ACTIVITY IN TYPICAL NEURALGIA OF THE TRIGEMINAL NERVE AND FACIAL SYMPATHALGIA

Yerokhina, L. G.; Puchinskaya, L. M.

The authors studied the bioelectrical brain activity in 105 patients with different pain syndromes of the face (66 with ipsilateral, 5 with bilateral typical neuralgia of the V nerve, 4 with postherpetical neuralgia, 4 with neuralgia of the glossopharyngeal nerve and 25 with facial sympathalgia). In typical neuralgia the EEG shows signs of irritation, desynchronization and discharges of paroxysmal bilateral activity. These changes were especially stressed in registrating the biopotentials during or proximately following the attack of neuralgia. The authors presume that these changes may indicate to the involvement of the stem reticular formation in the complex mechanisms of the pathogenesis of a typical neuralgia of the trigeminal nerve.

REEL/FRAME
19680593

YEROKHINA, L. I.

BIOLOGY

[illegible] 53955

THE SELECTION OF USEFUL FORMS OF MICROORGANISMS

(Conference in Moscow)

[Article by Doctor of Biological Sciences S. I. Alikhanyan and Candidate of Biological Sciences L. I. [illegible], Moscow, Vestnik Akademii Nauk SSSR, Russian, Vol 41, No 6, June 1971, pp 113-116]

The profitability of the production of products of microbiological synthesis -- antibiotics, steroid preparations, vitamins, gibberellins, amino acids, fodder protein, etc -- depends to a considerable degree on the productivity of the strains of microorganisms used. However, in many branches of industry using microbiological synthesis the selection work with microorganisms either lags or is lacking altogether.

On 5-6 January, in Moscow, was held the First All-Union Conference devoted to questions in the organization and expansion of work on the selection of useful forms of microorganisms. It was convoked by the Main Administration of the Microbiological Industry under the Council of Ministers USSR, the Scientific Council for Problems of Genetics and Selection and the Scientific Council for the Physiology and Biochemistry of Microorganisms of the AS USSR, the Institute of Microbiology of the AS USSR and the All-Union Scientific Research Institute of Genetics and Selection of the Industry of Microorganisms.

Participating in the work of the conference were 1[illegible] representatives of academic and branch scientific institutions, VUZ, ministries, departments, and enterprises. The conference was opened by the Director of the All-Union Scientific Research Institute of Genetics and Selection of the Industry of Microorganisms, S. I. Alikhanyan, who briefly characterized the main tasks.

The chief of the Main Administration of the Microbiological Industry, V. D. Belyayev emphasized in his introductory

USSR

UDC 547.341.07

PETROV, K. A., PARSHINA, V. A., YEROKHINA, T. S., and PETROVA, G. M.

"A Method of Producing Hydroxymethyl-bis-(dialkylaminomethylene) Phosphine Oxides"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 16, Jun 73, Author's Certificate No 375300, Division C, filed 9 Aug 71, published 23 Mar 73, p 52

Translation: This Author's Certificate introduces: 1. A method of producing hydroxymethyl-bis-(dialkylaminomethylene) phosphine oxides. As a distinguishing feature of the patent, trioxymethyl phosphine oxide is reacted with a lower dialkylamine ($C \leq 4$) in the presence of heating with subsequent isolation of the goal product by conventional methods. 2. A modification of this method distinguished by the fact that heating is done to 100-140°C in a sealed tube.

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USSR

UDC: 51:621.391

YEROSH, I. L., KARPOVSKIY, M. G.

"Correction of Errors in Arithmetic Devices Based on Elements With Many Stable States"

V sb. Teor. kibernetika. Vyp. 2 (Theoretical Cybernetics--collection of works, No 2), Kiev, 1970, pp 78-79 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V414)

Translation: The authors consider classes of q-nary codes which detect and correct arithmetic errors in different channels. Conditions are formulated for the existence of AN codes which correct isolated errors of varying depth in symmetric and asymmetric arithmetic channels, where the depth of an error e, $e=\sum_{i=0}^{n-1} h_i q^i$, in the i-th digital place is understood to mean the quantity h_i.

A method is proposed for selecting a code which corrects isolated errors of arbitrary depth in arithmetic devices which utilize the decimal system of notation, where the individual units are based on binary elements. It is asserted that in a q-nary assymetric arithmetic channel, the number A of form $A=\frac{q^{t+1}-1}{q-1}$ generates a code with detection of t-tuple independent errors

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YEROSH, I. L., KARPOVSKIY, M. G., Teor. kibernetika, Vyp. 2, Kiev, 1970, pp 78-79

of arbitrary depth. Conditions are given for finding codes which detect and correct bundles of errors. In conclusion, estimates are given for the effectiveness of the proposed codes. V. Dyn'kin.

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USSR

UDC 669.162.212

SAMSONOV, G. V., YEROSHENKO, A. I., OSTROVERKHOV, V. I., KRAT, V. A., and DUBOVIK, T. V., Institute of Problems of Material Science, Academy of Sciences Ukr SSR and Brovary Powder Metallurgy Plant

Kiev, Poroshkovaya Metallurgiya, No 12, Dec 72, pp 46-48

Abstract: The technology for production of large-scale parts from boron carbonitride with a diameter of 100-300 mm has been developed jointly by the Department of Refractory Materials at the Institute of Problems of Material Science and the Brovary Powder Metallurgy Plant. The following maximum and minimum values of the different properties are presented:

Electrical resistance, ohm-cm	at 20°C	10^{13}
	at 2000°C	2×10^{4}
Coefficient of thermal conductivity, v/m,	at 300°C	27.0
	at 2000°C	9.8
Coefficient of thermal expansion, deg^{-1},	at 20-300°C	0.77×10^{-6}
	at 1000-2000°C	4.5×10^{-6}
Dielectric permeability at $\lambda = 4.6$ cm,	at 20°C	1.9-2.1
Tangent angle of dielectric loss at $\lambda = 4.6$ cm,	at 20°C	0.017-0.14

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USSR

SAMSONOV, G. V., et al., Poroshkovaya Metallurgiya, No 12, Dec 72, pp 46-48

Vaporization rate, g/cm^2-sec at 1515°C	6.78×10^{-9}
at 1927°C	4.43×10^{-6}
Compressive strength, kg/mm^2, at 20°C	1.59
at 2020°C	4.75
Bend strength, kg/mm^2, at 20°C	1.80
Modulus of normal elasticity, kg/cm^2, at 20°C	138300
at 1800°C	122500

The physical and engineering properties of boron carbonitride allow it to be recommended for use as refractory and electrical insulation material for crucibles, vats, pipe for transfer of molten metals, alloys slags and salts, jackets for thermocouples, refractory lining plates and high-temperature electrical insulators at temperatures up to 2000-2500°C. One table, 5 bibliographic references.

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USSR

UDC 681.327

YeROSHENKO, K. L.

"A Technique for Recording Mechanical Movements on a Magnetic Medium"

USSR Author's Certificate, Class G 11 b 5/02, No 337805, filed 12 May 69, published 7 June 72 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika No 3, Mar 73, Abstract No 3 A 379 P)

Translation: A technique is proposed for recording mechanical movements on a magnetic medium by the displacement of the boundaries of the magnetized medium in a direction perpendicular to the direction of its movement. To improve the accuracy of the recording, the medium is magnetized longitudinally on two tracks by harmonic signals equal in amplitude and opposite in phase.

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USSR UDC: 532.526

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P., TERENT'YEV, Yu. N.

"Influence of Strong Injection on Stability of Flow and Transition to Turbulent Flow"

Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred. [Heat Physical Properties and Gas Dynamics of High Temperature Media -- Collection of Works], Moscow, Nauka Press, 1972, pp 56-64 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12B782, by the authors)

Translation: Some general conclusions from the theory of stability using the method of small oscillations are studied. The use of the interferometric method for visualization of the area of loss of stability and the transition to the turbulent mode is analyzed. The data of interference measurements are used to determine such parameters as wavelength, frequency of development and phase velocity of a periodically excited motion. Quantitative data are presented on the dependence of the point of loss of stability and critical Reynolds number on injection parameter. It is established that with a given range of injection parameter, the flow is stabilized. The dependence of the wave number of an unstable periodic excited motion on critical Reynolds number and injection parameter is analyzed. The flow mode when the transition

USSR

Yeroshenko, V. M., Yermakov, A. L., Klimov, A. A., Motulevich, V. P., Terent'yev, Yu. N., Teplofiz. Svoystva i Gazodinamika Vysokotemperatur. Sred., Moscow, Nauka Press, 1972, pp 56-64.

to the turbulent mode is realized through a loss of stability due to reinforcement of small oscillations and the Taylor mechanism related to penetration of the turbulence of the external flow into the mixing zone is studied.

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USSR

UDC: 536.24+662.612.32

MOTULEVICH, V. P., VORONTSOV, Yu. N., YEROSHENKO, V. M., Moscow

"Combustion of Carbon Particles in a Supersonic Flow of a Chemically Active Gas"

Novosibirsk, Fizika Goreniya i Vzryva, No 3, 1971, pp 345-352

Abstract: There is great interest in problems of heat and mass transfer with heterogeneous physical and chemical processes, arising in various areas of technology including power engineering, chemical production, rocket construction, etc. In addition to the development of precise methods for solution of the problem, there is reason for further development of approximate methods which, having physical clarity, simplicity of application and convenience of analysis, are frequently sufficiently accurate for practice. This problem is studied in this work using the method of relative correspondence presented in an earlier work.

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USSR

YEROSHENKO, V. M., YERMAKOV, A. L., KLIMOV, A. A., MOTULEVICH, V. P., TERENT'-YEV, YU. N., Moscow

"Experimental Study of the Effect of Intense Blowing of Various Gases on a Turbulent Boundary Layer"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

Abstract: This article contains the results of an experimental study of the effect of blowing of various gases (air, CO_2) on the turbulent boundary layer of a flat plate. The deformation sequence of the average velocity and concentration distributions of the turbulent boundary layer which occurs on variation of the blowing parameter in a broad range is investigated. The increase in thickness of the laminar sublayer during blowing without turbulization and an increase in the physical thickness of the boundary layer are detected. The experiments were performed on a gas dynamic unit with a Mach-Zender interferometer type IT-14. For the study the blowing parameter $F = (\rho v)_w/(\rho u)_e$ where w refers to the conditions at the wall and e, to conditions at the edge of the boundary layer. All the experiments were performed under isothermal conditions

USSR

YEROSHENKO, V. M., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

with a zero longitudinal pressure gradient. The flow was essentially subsonic.

The experiments refute the widespread published opinion that blowing of a gas into a turbulent boundary layer turbulizes the laminar sublayer. This obviously does not always occur and depends on the size of the pores of the penetrable surface. The investigated two stages of deformation of the velocity and concentration profiles (boundary layer and jet type) are separated by an intermediate stage of deformation characterized by constant values of the velocity and concentration gradients along the entire zone of mixing both near the wall and in the core. By analyzing the curves representing the dimensionless velocity and concentration profiles as functions of the carbon dioxide gas blowing parameter it can be stated that the dissimilarity of the velocity and concentration profiles in the presence of weak blowing of carbon dioxide gas is caused by the presence of a density profile across the boundary layer -- $\rho_w/\rho_e = 1.5$. It is pointed out that if this is so it is indifferent how the density profile is created (for example, it can be obtained

USSR

YEROSHENKO, V. M., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 1, January-February 1971, pp 162-167

with uniform blowing but in the presence of heat exchange). It is also interesting to note that the concentration profiles in the presence of weak blowing of carbon dioxide gas are also deformed by power laws.

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YEROSHENKO, V. M.

RAN/ /R-760/5-... 73
Dec 72

46

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Motulevich, V. P., Yu. N. Vorontsov, and V. M. Yeroshenko. Combustion of carbon particles in supersonic flow of a chemically active gas. FGiV, no. 3, 1971, 345-352.

The approximate method of relative correspondence of Motulevich (IFZh, v. 14, no. 1, 1968) is used to evaluate the surface ablation rate on a body purified by a chemically active gas. To check the theoretical relationships of the process, experiments were conducted in a supersonic wind tunnel. Carbon rod models were placed between the nozzle and a cylindrical diffuser 3-4 mm from the nozzle cutoff. The mainstream parameters were: Mach number $M = 2.72-3.03$, stagnation temperature $T_{\infty} = 1100-1300^{\circ}$ K, stagnation pressure $p_{\infty} = 1.86-2.24 \times 10^5$ newtons/m^2. The model shapes were a cylinder, a hemisphere-cylinder, and a cone-cylinder. The material nominal density was 1.54 g/cm^3. The model diameter was $d = 4-8$ mm and relative length was $\bar{l} = 6$ mm. The modal configuration changes and the surface brightness temperature were measured by photopyrometry. The characteristic wavelength was $\lambda_{eff} =$ 0.66 microns; the gas was assumed to be optically transparent. The accuracy of temperature measurement was to within ± 4%. When processing the experimental results, it was assumed that the chemical reaction takes place only on the surface within the observed surface-temperature range ($1600-2400^{\circ}$ K) according to the system:

$$2C+O_2 = 2CO.$$

As a result of particle interaction with the flow, the axisymmetric models acquired a shape that can be approximated by an ellipsoid of revolution with the characteristic dimension $a = 0.13-2.0$. The absolute temperature values near the forward critical point are presented in Table 1.

USSR UDC 532.526.4

YERMAKOV, A. L., YEROSHENKO, V. M., KLIMOV, A. A., MOTULEVICH, V. P., and TERENT'EV, Yu. N.

"Experimental Investigation of the Structure of a Turbulent Boundary Layer During the Injection of Helium"

Moscow, Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 60-67

Abstract: The method for protecting the surfaces of various structure elements, based upon the transverse delivery of a substance into the boundary layer, is popular in view of its great effectiveness. In some applications, it becomes necessary to decrease heat fluxes to the surface by a factor of several multiples of 10, and to force the mainstream away from the wall to such an extent that its concentration on the surface be negligibly small. This is realized by means of strong injection. Considerable results have recently been obtained with the use of numerical methods for calculating the interaction of a laminar stream of gas with a body during the intensive delivery of a mass from the surface. Comparison of the results of numerical calculation yields good with experimental values.

USSR

YERMAKOV, A. L., et al., Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 60-67

The present work represents a continuation of experimental research on the structure of a turbulent boundary layer during injection through a porous plate. The results of an experimental investigation of the structure of a turbulent boundary layer on a porous plate during the injection of helium are presented. The influence of the injection parameter upon the averaged and pulsation distribution of velocities and concentrations in the layer is analyzed. The sequence of the process of forcing the mainstream away is described, and the displacement parameter is given. 7 figures. 9 refereuces.

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USSR

UDC 533.601.34

YERMAKOV, A. L., YEROSHENKO, V. M., KLIMOV, A. A., MOTULEVICH, V. P., and TERENT'YEV, Yu. N.

"Experimental Investigation of Flow Stability During Intensive Injection"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 114-123

Abstract: Results are presented of an experimental investigation of the loss of flow stability in boundary layers forced aside by injection. The experiments did not confirm the widely held opinion concerning the strong destabilizing influence of injection. Moreover, a flow-stabilization effect is noted when injection intensity is increased; this effect originates due to a decrease in the value of velocity shear in the zone of intensive viscous interaction. A semiempirical formula is obtained for determining the critical Reynolds number at the point of loss of stability. Consideration is given to the development of disturbances, and a correspondence is shown between the experimental data and calculations by the method of small vibrations for an ideal fluid. An analysis is made of the transition to turbulence through stability loss due to the selective intensification of small vibrations and, simultaneously, to the penetration of turbulent

USSR

YERMAKOV, A. L., et al., Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov-Dec 72, pp 114-123

disturbances of the external stream into the shear zone. The high flow stability in shear layers forced aside by injection is explained by the stabilizing influence of the elastic gaseous medium over which they develop. Nine figures, eight references.

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1/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPARISON BETWEEN INTERPLANETARY MAGNETIC FIELD MEASUREMENTS OBTAINED BY THE SPACE STATIONS VENERA 4 AND MARINER 5 -U-
AUTHOR-(03)-DOLGINOV, SH.SH., YEROSHENKO, YE.G., ZHUZGOV, L.N.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKIE ISSLEDOVANIIA, VOL. 8, MAR.-APR. 1970, P. 290-297

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES, SPACE TECHNOLOGY
TOPIC TAGS--SPACE MAGNETIC FIELD, INTERPLANETARY FIELD, MAGNETIC FIELD INTENSITY/(U)VENUS 4 VENUS PROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/1765 STEP NO--UR/0293/70/008/000/0290/0297

CIRC ACCESSION NO--AP0115594
UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0115594

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPARISON OF THE FIELD MEASUREMENTS OBTAINED BY VENERA 4 AND MARINER 5 DURING THEIR SIMULTANEOUS FLIGHT TOWARD THE PLANET VENUS. THE COMPARISON CONFIRMS THE EXISTENCE OF A DISTINCT CORRELATION BETWEEN THE INTERPLANETARY FIELD INTENSITY AND THE GEOMAGNETIC ACTIVITY LEVEL AND 27 DAY SOLAR ACTIVITY CYCLE.

UNCLASSIFIED

USSR

UDC: 621.372.86(088.8)

MARIN, V. P., ZAKHAROV, V. P., GOLOVENKOV, V. F., YEROSHEV, V. K.

"A Waveguide Port for Tapping Energy"

USSR Author's Certificate No 265294, filed 11 Dec 67, published 26 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B176 P)

Translation: The proposed waveguide energy-tapping port for electronic instruments in the SHF range contains a flat ceramic insulator. To reduce dielectric losses, improve the reliability of the metal-to-ceramic seal and simplify the process of manufacture, the port contains a metal ring support flange with reinforcing ribs spaced at equal angles along the radii. The dielectric ceramic insulator is made up of several sectors in a number equal to the number of ribs. Each ceramic sector is vacuum tight against two adjacent ribs and against the part of the support flange between them. To improve heat transfer, the radial reinforcement ribs have internal channels for liquid coolant. Two illustrations. Resumé.

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1/2 030 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--MERIDIONAL REINFORCEMENT OF THE SCLERA WITH FEMORAL FASCIA LATA IN PROGRESSIVE MYOPIA -U-

AUTHOR-(02)-YEROSHEVSKIY, T.I., PANFILOV, N.I.

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER PERTINENT EXPERIMENTATION THE AUTHORS PERFORMED 36 OPERATIONS OF MERIDIANAL REINFORCEMENT OF THE SCLERA WITH AN AUTOTRANSPLANT FROM FEMORAL FASCIA LATA, TO PREVENT PROGRESSIVE MYOPIS. THE TECHNIQUE OF EXSECTING BANDS IN FEMORAL FASCIA LATA AND A MODIFIED PROCEDURE OF ITS TRANSPLANTATION ONTO THE EYEBALL AFTER M. M. SHEVELEV AND KURTIN ARE DESCRIBED IN DETAIL. FOLLOW UP OBSERVATIONS OF PATIENTS OPERATED UPON (LASTING FROM 4 TO 28 MONTHS) SHOWED MYOPIA TO HAVE DIMINISHED SKIASCOPICALLY BY 1-2.0 D IN 12 PATIENTS (13 EYES), THE REMAINING ONES EXHIBITING NO PROGRESSIVE DETERIORATION WITHIN THIS PERIOD OF OBSERVATION. VISUAL ACUITY ROSE IN 20 PATIENTS. ALTHOUGH THE AUTHORS DO NOT CALL IN QUESTION THE VALIDITY OF THE IDEA ENVISAGING REINFORCEMENT OF THE SCLERA IN PROGRESSIVE MYOPIS, AS SUCH, THEY FEEL THAT ITS TECHNIQUE REQUIRES FURTHER IMPROVEMENT.

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SID'KO, F. Ya.; TERSKOV, I. A., Corresponding Member Academy of Sciences USSR; BERESNEV, G. F., YEROSHIN, N. S., and ZAKHAROVA, V. A., Institute of Physics imeni L. V. Kirenskiy, Siberian Department of the Academy of Sciences USSR, Krasnoyarsk

"The Possibility of Utilizing Transition Processes in Order to Increase the Efficiency of Photosynthesis by the One-Celled Alga Chlorella"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

Abstract: In the experiments conducted, it was established that effective utilization of radiant energy is not achieved in the cultivation of chlorella in dense cultures; the efficiency of photosynthesis is lower than that obtained when the cells are illuminated uniformly. The efficiency could be increased by utilizing light adaptation during a transitional period. This can be done when cultivation is carried out in a multilayer apparatus. A significant effect was already obtained in a two-layer apparatus irradiated from one side. On cultivation in the first layer at a high irradiancy, in which the photosynthetic activity of the cells reached a high level, the output was pumped into the second layer with a lower irradiance. The final crop was collected from the second layer. The optical density in the first layer was $D \leq 0.5$-

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SID'KO, F. Ya., et al., Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

0.6, while the total value of D in the two layers corresponded to an equation derived by Sid'ko et al in Sbornik, Aktinometriya i Atmosfernaya Optika [Collection. Actinometry and Optics of the Atmosphere], p 326, Tallin, 1968. The utilization of radiant energy increased in the two-layer apparatus. Thus, at irradiances corresponding to 240 and 480 wt/m^2 photosynthetically active radiation the efficiency of photosynthesis increased by 25 and 40% vs. that in single-layer cultivation. At an irradiancy of 408 wt/m^2, the efficiency of photosynthesis approached 19% and was approximately 1.5 times higher than in single-layer cultivation at irradiances of 80-100 wt/m^2 that were optimal for the single-layer process. The reverse procedure of first irradiating chlorella cells at a low light intensity and then carrying out cultivation at a high intensity had the opposite effect of reducing the efficiency of photosynthesis. Irradiation at high light intensities produced under certain conditions profound changes in the pigment system, morphology, and biochemical composition of chlorella cells, while the efficiency of photosynthesis remained high. One of the changes produced was a reduction in the concentration of chlorophyll.

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YERGSHIN, V. A., Scientific-Research Institute of Mechanics

"The Ricochet of a Flat Plate From the Surface of an Ideal Incompressible Fluid"

Vestnik Moskovskogo universiteta, Matematik, mekhanika, No 6, 1970, pp 99-104

Abstract: In problems of nonstationary skimming, the determination of the configuration of the free surface and the length of the wetted surface of the plate are difficult, since the length of the wetted area, as a function of time, depends strongly on the configuration and dimensions of the hydroplaning plate, on the depth of immersion and angle of attack. The wetted length cannot be considered a parameter, but must nevertheless be determined in the process of obtaining a solution.

Here the problem is considered for the ricochet and nonselfsimilar landing of the step, with the trailing vortices taken into account; the length of wetted plate surface is determined by a calculation of the rise of liquid in front of the plate to the point where it touches the surface; the configuration of the free surface is also determined.

The problem here is posed in the manner of L. I. Sedov (Trudy TsAGI, No 252, 1936).

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UDC: None

YEROZOLIMSKIY, B. G., BONDARENKO, L. N., MOSTOVOY, Yu. A., OBINYAKOV, B. A., FEDUNIN, V. P., and FRANK, A. I.

"Measurement of Neutron Spin-Electron Impulse Angular Correlation in the Decay of Polarized Neutrons"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 13, No. 7, 5 April 1971, pp 356-359

Abstract: This letter offers an experimental method for precise measurement of the angular correlation coefficient in the beta decay of neutrons. To avoid errors due to proton recoil and other factors, the operating part of the neutron beam in the experimental apparatus is separated out by a diaphragm from the electron detector, and the recording of all decay protons corresponding to the recorded electrons is thus guaranteed. A cross-sectional sketch of the apparatus is given. The polarization coefficient of the neutron beam, measured by the Stern-Gerlach method, was 0.77 ± 0.02 at an intensity of $3 \cdot 10^{7}$ neutrons/sec. The

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YEROZOLIMSKIY, B. G., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoriticheskoy Fiziki, vol. 13, No. 7, 5 April 1971, pp 356-359

experimental work was done in the IRT-M reactor of the Institute of Atomic Energy imeni I. V. Kurchatov. The authors express their gratitude to P. Ye. Spivak for his interest; to A. I. Afonin, A. G. Roshchin, A. Yu. Kulikov, and S. I. Kuznetsov for setting up the equipment and making measurements; and to the personnel under the direction of V. P. Chernyshevich, in charge of the IRT-M reactor.

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AUTHOR-(05)-YEROZOLIMSKIY, B.G., BONDARENKO, L.N., MOSTOVOY, YU.A., OBINYAKOV, B.A., ZAKHAROVA, V.P.

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